



## Wireless Communications Association International

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*"Providing broadband video, voice and data services"*

March 21, 2001

Magalie Roman Salas  
Secretary  
Federal Communications Commission  
Washington, DC 20554

Re: *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems – ET Docket No. 00-258*  
*WRITTEN EX PARTE COMMUNICATION*

Dear Ms. Salas:

The Wireless Communications Association International, Inc. ("WCAI") hereby supplements its comments and reply comments to further address the devastating economic impact upon the MDS/ITFS-based broadband industry were the Commission to reduce the amount of spectrum available to the industry under proposals being advocated by a handful of 3G proponents.

At the outset, it is essential to note that while a few 3G proponents still call for reallocation of the 2.1 and 2.5 GHz MDS/ITFS bands for 3G,<sup>1</sup> not one proponent of reallocation has made any serious effort to identify comparable relocation spectrum.<sup>2</sup> Given that the *NPRM* specifically called on proponents of reallocation to identify relocation spectrum,<sup>3</sup> this confirms what the Commission and the MDS/ITFS industry

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<sup>1</sup> See Reply Comments of VoiceStream Wireless Corp, ET Docket No. 00-258, at 3-4 (filed March 9, 2001) [hereinafter cited as "VoiceStream Reply Comments"]; Reply Comments of Verizon Wireless, ET Docket No. 00-258, at 13-17 (filed March 9, 2001) [hereinafter cited as "Verizon Reply Comments"].

<sup>2</sup> Verizon suggests that MDS facilities in the 2.1 GHz band can be relocated to the 2.5 GHz band by displacing ITFS stations. However, Verizon does even address relocation for the ITFS stations that would be displaced as a result. See Verizon Reply Comments at 14.

<sup>3</sup> *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, ET Docket No. 00-258, FCC 00-455, at ¶ 56 (rel. Jan. 5, 2001).

have already concluded -- that there is no comparable relocation spectrum for ubiquitous MDS/ITFS-based point-to-multipoint broadband services.<sup>4</sup>

Even if one suspends reality and assumes that somewhere replacement spectrum must exist, the failure of the 3G proponents to specifically identify comparable replacement spectrum makes it nearly impossible for WCA or, for that matter, the Commission, to quantify the costs that would be incurred were broadband wireless systems relocated to other spectrum.<sup>5</sup> The record clearly reflects that the costs of relocation are highly dependent upon the propagation characteristics of the replacement spectrum and the costs associated with developing and manufacturing equipment capable of operating in that spectrum.<sup>6</sup> WCA's initial comments identified in narrative form the cost elements that would have to be reimbursed upon any reallocation,<sup>7</sup> and no proponent of relocation submitted reply comments objecting to those elements.

Implicitly recognizing that there is no comparable spectrum to which MDS/ITFS licensees can be relocated, a few commenters suggest that MDS and ITFS licensees can simply make do with less spectrum. For example, the reply comments filed by VoiceStream Wireless Corp. ("VoiceStream") suggest that the Commission strip the MDS/ITFS community of the entire 2.1 GHz band and 120 MHz of the 2.5 GHz band.<sup>8</sup> VoiceStream contends, albeit in conclusory fashion, that the remaining 66 MHz "should

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<sup>4</sup> See *Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies*, 7 FCC Rcd 6886, 6889 (1992); Comments of The Wireless Communications Association International, Inc., ET Docket No. 00-258, at 30-32 (filed Feb. 22, 2001) [hereinafter cited as "WCA Comments"]; Comments of Sprint Corporation, ET Docket No. 00-258, at 25 (filed Feb. 22, 2001) [hereinafter cited as "Sprint Comments"]; Comments of WorldCom, Inc., ET Docket No. 00-258, at 25 (filed Feb. 22, 2001) [hereinafter cited as "WorldCom Comments"].

<sup>5</sup> WCA notes that the National ITFS Association ("NIA") recently filed with the Commission a preliminary analysis of the costs that ITFS licensees would incur were the Commission to force the migration of ITFS licensees to some higher, as yet unidentified, spectrum band. NIA made clear that the actual costs would be highly dependent upon the specific replacement spectrum. NIA concluded that the total cost over fifteen years in increased capital costs, increased operating costs, and lost leasing revenues would be approximately \$18.7 billion. NIA's study did not attempt to quantify the costs that relocation of ITFS licensees would impose on MDS fixed wireless broadband system operators, and the analysis WCA is submitting here does not attempt to quantify the costs that would be imposed on ITFS licensees by a reduction of 90 MHz in the amount of spectrum allocated to ITFS at 2.5 GHz.

<sup>6</sup> See WCA Comments at 52-53; Sprint Comments at 20-23; Comments of Nucentrix Broadband Networks, Inc., ET Docket No. 00-258, at 16 (filed Feb. 22, 2001) [hereinafter cited as "Nucentrix Comments"].

<sup>7</sup> See WCA Comments at 50-52.

<sup>8</sup> See VoiceStream Reply Comments at 3-4.

be sufficient spectrum for MDS and ITFS [*sic*] licenses.”<sup>9</sup> Significantly, VoiceStream does not acknowledge, much less refute, the study by HAI Consulting, Inc. (“HAI”), “Two-Way Fixed Wireless Broadband Service: Spectrum Requirements and Business Case Analysis” (the “HAI Study”), that was filed with WCA’s initial comments. The HAI Study demonstrated that even a much more modest reduction in spectrum than that proposed by VoiceStream would have a devastating impact on the MDS/ITFS-based broadband industry. Indeed, only one 3G proponent, Verizon Wireless, even attempted to refute the conclusions of the HAI Study. While Verizon would have the Commission believe that MDS/ITFS-based broadband systems can make do with less spectrum by increasing the number of cells, Verizon ignores the economic consequences of such an approach.<sup>10</sup>

The HAI Study demonstrated in great detail how a reduction in the spectrum available for MDS/ITFS-based broadband services would significantly increase the number of cell sites required, thereby increasing the cost of providing service to levels that cannot be recouped in the competitive marketplace.<sup>11</sup> The following table, drawn from Table V-7 of the HAI Study, speaks volumes as to the impact of spectrum reduction on per-subscriber capital expenditures:

Market Quintile	Investment Per 10 <sup>m</sup> Year Subscriber	
	158 MHz Available	68 MHz Available
1	\$ 994	\$ 2479
2	\$ 1026	\$ 2498
3	\$ 479	\$ 2928
4	\$ 461	\$ 2993
5	\$ 480	\$ 810

In addition, the HAI Study demonstrated that operating costs would substantially increase were there to be a reduction in spectrum. Indeed, HAI showed that were the amount of

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<sup>9</sup> *Id.* at 4.

<sup>10</sup> See Verizon Reply Comments at 21. WCA notes that much of Verizon’s argument appears to be based on mistaken beliefs regarding the MDS business. For example, without citation to any support whatsoever, Verizon contends that a 15 mile radius coverage from MDS stations “has historically been used by commercial MDS operators.” *Id.* at 22. In fact, the Commission has long recognized that MDS operators serve areas far greater than 15 miles and that a 35 mile coverage area more closely reflects the actual commercial service area of MDS and ITFS stations. See *Amendment of Parts 21, 43, 74, 78, and 94 of the Commission’s Rules Governing Use of the Frequencies in the 2.1 and 2.5 GHz Bands Affecting: Private Operational-Fixed Microwave Service, Multipoint Distribution Service, Multichannel Multipoint Distribution Service, Instructional Television Fixed Service, & Cable Television Relay Service*, 10 FCC Rcd 7074 (1995).

<sup>11</sup> See WCA Comments, Appendix B at 24.

spectrum available to a broadband service provider reduced by 90 MHz, the estimated internal rate of return would fall below 0% for markets of all sizes.<sup>12</sup>

To look at the issue in a somewhat different way, WCA asked HAI to prepare a preliminary evaluation of the increased capital and operating costs that would be imposed on an MDS/ITFS-based broadband service provider over time were it to attempt to provide service despite the loss of 90 MHz of available spectrum. A summary of that analysis is attached. This submission by WCA should not be taken by the Commission or anyone else to indicate that MDS/ITFS-based broadband service operators would actually deploy fixed wireless broadband service were the Commission to strip away 90 MHz of spectrum – it is provided merely as an empirical exercise to assist the Commission in understanding the magnitude of the problem. WorldCom, Sprint and Nucentrix, among others, have all made clear that a 90 MHz reduction in the spectrum available to them would bring to a halt their deployment plans.<sup>13</sup>

Moreover, even if operators were willing to deploy service with substantially less spectrum, the transition process of phasing out reallocated channels would be exceedingly complex, perhaps requiring additional channels to be used during the transition. For example, assume a supercell system that must transition to fifteen cells in order to accommodate a 90 MHz reduction in spectrum. The most efficient way to effectuate a transition without interrupting service to subscribers would be to construct and test the cellularized system, visit each subscriber location to replace the obsolete customer premises equipment and orient the antenna to the cell, and then discontinue usage of the supercell once all subscribers have been transitioned. That approach would require that the operator have available enough extra spectrum that it could, in effect, operate two systems without degrading service levels to subscribers. If the supercell were heavily loaded, there would be no spectrum available on which the cellularized system could operate simultaneously – making a seamless transition impossible absent access to other spectrum. The need to use interim spectrum to effectuate a seamless transition imposes its own additional costs that cannot be quantified until the interim spectrum is identified.

It is because of these sorts of unknowns that it is nearly impossible for WCA, HAI or anyone else to quantify with precision the costs of spectrum reduction at this early date. Thus, the attached HAI analysis was developed to be, and should be recognized as, a preliminary assessment of those costs based on today's limited knowledge. *HAI estimates that the net present value of the costs that will be incurred over ten years as a result of the proposed 90 MHz spectrum reduction will be almost \$19 billion (i.e. that is*

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<sup>12</sup> See *id.* at 27.

<sup>13</sup> See WorldCom Comments at 21; Sprint Comments at 20; Nucentrix Comments at 8-12.

*the amount that would have to be paid today to make operators whole for the costs they will incur over that ten year period).* In some cases this probably underestimates costs. For example, HAI's analysis assumes that the new equipment that will have to be installed at subscriber premises will be no more expensive than the presently-available subscriber equipment. However, if 3G systems are operating in the 2.5 GHz band, more complex filtering will be required in the fixed wireless broadband equipment -- filtering which likely will increase costs. HAI's analysis assumes that the operator will only have to incur the costs of a single truck roll and installation at each subscriber's home in order to effectuate the change. Yet, as discussed above, the logistics of transitioning may require the use of interim channels (and interim equipment) that mandate an expensive two-step process. Costs and revenue losses associated with subscribers lost as a result of the transition, whether one-step or two-step, are not included. And, as explained above in note 5, the HAI Study does not include any of the costs associated with transitioning ITFS instructional services to the reduced spectrum allocation or to alternative spectrum. The analysis presents a reasonable estimate of the costs that the MDS/ITFS-based broadband service providers would face were they to attempt to move forward in the face of a 90 MHz decrease in available spectrum.

In conclusion, if the Commission is serious about promoting the availability of broadband into unserved and underserved areas of the country, and if the Commission is serious about promoting wireless alternatives to the DSL and cable monopolies, it will preserve for MDS/ITFS-based providers the entire 2.1 and 2.5 GHz spectrum allocation. For if the Commission does not, the record is clear that the public interest benefits of MDS/ITFS-based broadband service will fall by the wayside.

Respectfully submitted,

/s/

Andrew Kreig  
President

Cc: Chairman Michael K. Powell  
Commissioner Susan Ness  
Commissioner Harold W. Furchtgott-Roth  
Commissioner Gloria Tristani

## Cost of Spectrum Reduction

Reduction by 90 MHz (All \$\$ = Millions)

Market Quintile	Number of BTAs	% With MDS/MMDS /ITFS Deployed	Fifth Year Reduction: Incremental Cell Sites Per Market	Fifth Year Reduction: Cost for Median Market	Fifth Year Total For All Markets In Quintile	Tenth Year Reduction: Incremental Cell Sites Per Market	Tenth Year Reduction: Cost for Median Market	Tenth Year: Total For All Markets In Quintile
1	99	80%	36	\$ 113.20	\$ 8,965	71	\$ 136.64	\$ 10,822
2	99	90%	11	\$ 35.00	\$ 3,119	22	\$ 42.14	\$ 3,755
3	98	75%	10	\$ 27.69	\$ 2,035	21	\$ 33.50	\$ 2,462
4	99	65%	7	\$ 18.54	\$ 1,193	14	\$ 22.59	\$ 1,454
5	98	60%	0	\$ 3.74	\$ 220	0	\$ 5.50	\$ 323
<b>Totals:</b>	493				\$ 15,532			\$ 18,816

### Key Assumptions:

Every Subscriber needs new CPE - channelization has to change completely (First year CPE cost is used)

Every subscriber needs to be re-installed (5th year or 10th year installation cost is used).

In the 5th Year cost, for projected subscribers added years 6 through 10 a buy-down of CPE cost is needed for going back up the cost curve.

In the 5th Year cost, the NPV of incremental capex required to build the additional required cell sites for years 6-10 is included.

All transmitters at existing sites are re-tuned @ 25% cost of original investment

Existing Combiners, antennae etc. are re-used, 80% of existing investment is still usable if changing to MultiCell, 95% if staying Supercell

Transport equipment is re-used, 10% of investment required to relocate to new sites if changing from Super to MultiCell.

All new sites needed for multisite markets, (lower, more closely spaced, presume few if any existing sites can be re-used)

One year of site rent needed to buy out existing site leases

The increase in cell sites drives an increase in operating expenses with no off-setting revenue increase, therefore the NPV of the increase over 10 years is included.